

## **DIABETIC MEDICATION (TYPE I AND II) IN SCHOOLS**

Note: For a more in-depth review of diabetes, its management and possible complication, please refer to Chapter 7, Special Health Care Needs.

Diabetes is a disorder that affects the production of insulin by the pancreas. Insulin is necessary for the breakdown of sugars and carbohydrates in the bloodstream. School personnel must have an understanding of diabetes and its management in order to assist the student in maintaining appropriate blood glucose levels and decreasing the risks for diabetic complications.

Type I Diabetes, previously called juvenile or insulin-dependent diabetes, is diagnosed in about 1 in every 400 to 500 school-aged children each year. The child with Type I Diabetes will require daily insulin administration either by injection or insulin pump. Sometimes the child will require additional insulin injections at school depending on the blood glucose levels. Type II Diabetes, formerly known as adult-onset or non-insulin dependent diabetes, is more commonly found in adults, however, there are instances when a school-age child has been diagnosed with Type II Diabetes. The child with Type II Diabetes will usually be managed with diet, exercise and oral medications.

### **Administration of Insulin**

According to [KRS 156.502](#), Section 2, school health services should be provided within the registered nurse or licensed practical nurse current scope or practice and who is licensed under the provisions of [KRS Chapter 314](#). [KRS Chapter 314](#) authorizes the Kentucky Board of Nursing (KBN) to regulate nurses, and nursing education and practice, to promulgate administrative regulations, and issue advisory opinions on nursing practice in order to assure safe and effective nursing care is provided by nurses to the public.

KBN Advisory Opinion Statement AOS #87-15, Supervision and Delegation, p.4, 5(b) states that unless for the intervention in a life-threatening situation, the administration of medication via any injectable route should not be delegated to unlicensed personnel.

### **Types of Insulin**

There are several types of insulin. Each type of insulin will vary in the onset and duration of action. Most students will have a schedule that includes both short and intermediate-acting insulin, taken approximately 30 minutes before breakfast and the evening meal. If the blood glucose level is high four hours after the morning injection, the student may require an additional dose of short-acting insulin (regular insulin) while attending school. (A student with an insulin pump may require a bolus of insulin if the blood glucose level is high.) Student responsibility for insulin self-injection should occur when the child's developmental level indicates that this is an appropriate goal, and agreed upon by the parent's, the child, and the health care provider.

#### **Insulin Administration Guidelines:**

- Always inspect the insulin, checking the expiration date on label. Humalog and Regular insulins are clear, others are cloudy. Long-and intermediate-acting insulins must be gently mixed by rolling the vial between the palms. Do not use insulin that appears "clumpy" or that is not uniform in consistency.
- Injection sites may include: abdomen, thighs, buttocks, or arms. Sites should be rotated in order to avoid tissue damage, which results in the poor absorption of insulin.
- Keep insulin refrigerated. Un-refrigerated insulin should be kept as cool as possible. Date the insulin when it is first opened and discard 30 days after opening.
- Do not let insulin freeze. If it becomes frozen, discard immediately.
- Insulin may be carried in a fanny pack or backpack with an ice pack, as long as it is positioned so it does not freeze or get too warm.
- Pre-filled insulin pens should be stored in a refrigerator. Insulin pens with cartridges are not refrigerated, although the unused cartridges are refrigerated. The time period of use for an insulin

pen may vary from manufacturer to manufacturer and needs to be noted by the school nurse/employee.

- Students who wear an insulin pump should keep an extra set of tubing and extra batteries in the nurse or principal's office.
- Syringes and needles should be kept in a locked cupboard.
- Disposal of syringes and needles should be in compliance with Occupational Safety and Health Administration (OSHA) guidelines.<sup>(4)</sup>

### Insulin Pumps

Insulin pumps are computerized devices, about the size of a beeper or pager, which can be worn on the belt or in the pocket. The pump delivers a steady, measured dose of insulin through a flexible plastic tube (cannula) with a small needle that is inserted through the skin at the infusion site (abdomen, thigh, arm or buttocks). The infusion set is kept in place for two or three days and then changed to a new location (usually done at home before coming to school). Insulin pumps may be worn during most athletic activities.

The insulin pump delivers the insulin in precise amounts at pre-programmed times. Pumps deliver insulin in two ways:

- 1.0 Basal: small, hourly dose that is pre programmed
- 2.0 Bolus: given to cover food or cover high blood sugar

The pump allows for more flexibility in food choices and meal timing. The user must still monitor blood sugars. The user must be willing to learn how to make adjustments in insulin, food and exercise in response to the blood sugar results. A plan to address troubleshooting the insulin pump for high or low blood sugars must be developed by the parents, the healthcare provider and the school. When symptoms of high or low blood sugar develop it is important to test the blood glucose level and report as outlined in the student's Individual Health Plan.<sup>(17)</sup>

## Guidelines on Medication Procedures A Summary

The National Education Association, the American Federation of Teachers, the Council for Exceptional Children, and the National Association of School Nurses jointly published a document entitled *Guidelines for the Delineation of Roles and Responsibilities for the Safe Delivery of Health in the Educational Setting* in 1990. This same chart was brought forward into the 1997 publication cited at the bottom of the page. While these guidelines cover a wide range of activities and school employees, the general policy regarding medication may be summarized as follows:

School employees other than a registered nurse or a health assistant are prohibited from administering medication except in emergencies that require a single dose injection of epinephrine or medication inhalation for a life threatening condition. Even in these emergencies, other school employees may administer medication only if they have been properly trained and if a registered nurse or health assistant is unavailable.

The guidelines define "emergency" as "a serious situation that arises suddenly and threatens the life or welfare of a person: a crisis."

### Guidelines for the Delineation of Roles and Responsibilities For the Safe Delivery of Specialized Health Care In The Educational Setting\*

Procedure	Prescriber Order Required	Registered Nurse (RN)	Licensed Practical Nurse (LPN)	Certified Teaching Personnel	Related Services Personnel	Para-professionals <sup>1</sup>	Others <sup>2</sup>
4.0 Medications - Medications may be given by LPN's and Health Aides only where the Nurse Practice Act of the individual state allows such practice, and under the specific guidelines of that nurse practice act.							
	Oral	•	A/O	S/O	X	X	S/HA
4.2	Injection	•	A/O	S/O	X	X	X
4.3	Epi-Pen Allergy Kit	•	A/O	S/O	EM	EM	EM
4.4	Inhalation	•	A/O	S/O	EM	EM	EM/HA
4.5	Rectal	•	A/O	S/O	X	X	EM/HA
4.6	Bladder Installation	•	A/O	S/O	X	X	X
4.7	Eye/Ear Drops	•	A/O	S/O	X	X	S/HA

#### Definitions of Symbols

A	Qualified to perform task, not in conflict with professional standards	X	Should not perform
S	Qualified to perform task with RN supervision and in-service education	O	Person who should be designated to perform task
EM	In emergencies, if properly trained, and if designated professional is not available		
1. Paraprofessionals include teacher aides, health aides (HA), non-certified teaching personnel.		2. Others include secretaries, bus drivers, cafeteria workers, custodians	

**\*DELINeATION OF RESPONSIBILITIES MUST ADHERE TO EACH STATE NURSING PRACTICE ACT.**

Adapted from *The Medically Fragile Child in the School Setting* 2nd Ed. (1997). Appendix D: Guidance for Staff Roles in Providing Care, Washington DC: American Federation of Teachers

In Zaiger, D.S. (2000) School Nursing Practice, An Orientation Manual, Ch III, p. 17.

## MEDICATION ADMINISTRATION TRAINING FOR SCHOOL PERSONNEL

### **Training Guidelines:**

School personnel giving medication shall receive formal training and monitoring. Training will be provided by personnel such as, but not limited to registered nurses, physicians, pharmacists and/or dentist. Medical personnel should adhere to the practice act standards for their profession as governed by the appropriate licensing authority.

**Purpose:** to assist each student with medication administration in order to maintain optimal health and to enhance the educational experience.

**Objectives:** Upon completion of the medication administration training, the participant(s) will demonstrate and/or verbalize the following competencies:

1. Safely administer medication under the law KRS 156.501 and JCPS requirements
2. Know the five rights (5 R's) of medication administration
3. Proper authorization process for medication(s) to be given at school
4. Read medication label
5. Follow directions on medication label correctly
6. Proper storage of prescription and over-the counter medication
7. Appropriate and correct record keeping regarding medication and/or self-administered medication
8. Correct and accurate notations on the record if medications are not taken/given either by refusal, omission, etc.
9. Proper action to be taken if medication is not taken/given either by refusal, omission, etc.
10. Use of resources correctly-i.e. nurse, physician, poison control, emergency services when appropriate

### **Evaluation process**

Objectives will be evaluated through either post-test or return demonstration(s), post-training monitoring, and annual training

## **DELEGATION OF HEALTH SERVICE(S) TO SCHOOL PERSONNEL**

School Year: \_\_\_\_\_ Date: \_\_\_\_\_

Employee Printed Name \_\_\_\_\_

School: \_\_\_\_\_

I have been instructed on my school district's guidelines for:

Employee Initials	Health Services Nurse's Initials	
		Administration of medications on daily basis and field trips
		Administration of medication on field trips only
		Asthma and Mini-nebulizer treatments
		Diabetes and blood glucose monitoring
		Epi-pen
		G-tube feedings
		G-tube medication administration
		Seizure and Diastat
		Trachs and suctioning

I understand that I am to follow district guidelines as delegated by the School Nurse. Upon signing this, I consent to perform the health service(s) initialed above by the delegating School Nurse and myself, possess the training and skills, and have demonstrated competency to safely and effectively perform the health service(s).

---

Employee Signature

---

Date

I have provided training to this individual on the health service(s) initialed above by the employee and myself in accordance with school district guidelines. She/he has demonstrated knowledge and understanding of this/these health service(s).

---

School Nurse Stamp/Signature

---

Date

## MEDICATION ADMINISTRATION RETURN DEMONSTRATION CHECKLIST

Explanation/Return Demonstration	Performs Independently	Perform with minimum verbal clues	Unable to perform
<b>Oral Medication:</b>			
Verbalizes & follows five (5) rights			
Able to read prescription label			
Check's Medication Authorization with prescription label			
Observes student taking (swallowing) medication			
Replace cap tightly or securely on medication bottle & locks up medication appropriately			
Documents on medication log sheet appropriately			
Calls student to office (if appropriate) in allotted time (30 minutes before or 30 minutes after)			
<b>Topical (ointment) Medication:</b>			
Verbalizes & follows five (5) rights			
Able to read prescription label			
Check's Medication Authorization with prescription label			
Washes hands and puts on gloves			
Applies medication to appropriate area			
Replaces cap tightly and locks up medication appropriately			
Removes gloves & washes hands			
Documents on medication log sheet appropriately			
Calls student to office (if appropriate) in allotted time (30 minutes before or 30 minutes after)			

Employee Printed Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_

Employee School: \_\_\_\_\_ Date: \_\_\_\_\_

School Nurse Stamp/Signature: \_\_\_\_\_

## MEDICATION ADMINISTRATION RETURN DEMONSTRATION CHECKLIST

<b>Eye drops or ointment</b>	
Verbalizes & follows five (5) rights	
Able to read prescription label	
Check's Medication Authorization with prescription label	
Washes hands & puts on gloves	
Stabilizes head by having head tilted back or by lying down	
Gently pulls lower lid away from eye to form "pocket"	
Places drop(s) into pocket area, allows drop to fall (doesn't touch bottle tip to eye or eyelid)	
Applies thin strip of ointment into "pocket" without touching eye or eyelid	
Has student close eye a few moments	
Wipes tip of bottle/tube with clean tissue	
Replace cap tightly or securely on medication bottle & locks up medication appropriately	
Removes gloves and washes hands	
Documents on medication log sheet appropriately	
Calls student to office (if appropriate) in allotted time (30 minutes before or 30 minutes after)	
<b>Ear drops:</b>	
Verbalizes & follows five (5) rights	
Able to read prescription label	
Check's Medication Authorization with prescription label	
Washes hands and puts on gloves	
Loosens lid on medication, squeezes rubber pump to fill dropper	
Stabilizes head by tilting head back or by lying down	
Gently pulls ear appropriately	
Holds dropper without touching ear or inserting to far	
Has student lie still a few moments & and if applicable inserts moist cotton ball into ear	
Replaces cap tightly and locks up medication appropriately	
Removes gloves & washes hands	
Documents on medication log sheet appropriately	
Calls student to office (if appropriate) in allotted time (30 minutes before or 30 minutes after)	

Employee Printed Name: \_\_\_\_\_  
 Employee Signature: \_\_\_\_\_  
 Employee School: \_\_\_\_\_ Date: \_\_\_\_\_  
 School Nurse Stamp/Signature: \_\_\_\_\_

## ASTHMA RETURN DEMONSTRATION CHECKLIST

Explanation/Return Demonstration	Performs Independently clues	Performs with minimum verbal clues	Unable to perform
<b>Inhaler</b>			
Verbalizes & follows five (5) rights			
Able to read prescription label			
Check's primary care provider Asthma authorization for completion (especially primary care provider's signature) with prescription label			
Washes hands			
Checks that canister is firmly positioned in plastic holder			
Attaches spacer and uses it appropriately (if prescribed)			
Shakes inhaler thoroughly			
* Has student take a deep breath in and out			
* On next deep breath in observes student taking puff from inhaler			
* Observes student hold breath for 5-10 seconds after inhaler used			
* Observes student exhale slowly			
* Has student wait a few minutes before taking second puff			
Observes student follow above steps (*) with second puff			
Places medication back in medication box & locks up medication appropriately			
Washes hands			
Documents on medication log sheet appropriately			
(**) Calls student to office (if appropriate) in allotted time (30 minutes before or 30 minutes after)			
<b>Peak Flow Meter</b>			
Check's primary care provider Asthma authorization for completion (especially peak flow meter ranges/instructions and primary care providers signature)			
Washes hands & puts on gloves			
(*)Places pointer at base of number scale (0)			
(*) Have student hold meter, take a deep breath, place meter in mouth & close lips around mouth piece, blow out hard and fast			
Have student repeat step (*) two more times			
Record highest of three readings and follow primary care provides instructions based on reading (i.e. administer medication)			
Remove gloves and wash hands			
Calls student to office (as above (**))			

Employee Printed Name: \_\_\_\_\_  
 Employee Signature: \_\_\_\_\_  
 Employee School: \_\_\_\_\_ Date: \_\_\_\_\_  
 School Nurse Stamp/Signature: \_\_\_\_\_

## ASTHMA RETURN DEMONSTRATION CHECKLIST

Explanation/Return Demonstration		Performs Independently clues	Performs with minimum verbal clues	Unable to perform
<b>Nebulizer</b>				
Verbalizes & follows five (5) rights				
Able to read prescription label				
Check's primary care provider (especially primary care provider's signature) with prescription label				
Washes hands				
Gathers equipment (machine, tubing, nebulizer cup, mouthpiece or mask, medication, saline)				
Places nebulizer on firm, flat surface & plug it into electrical outlet				
Attaches the end of tubing to nebulizer air outlet				
Unscrews the top from the nebulizer cup, places medication & diluent into cup as prescribed				
Reattaches nebulizer cap tightly				
Attaches the connecting tubing to nebulizer cup outlet				
Has student sit in comfortable position				
Turn on power, observe for mist from mouthpiece or mask				
Give student mouthpiece to place between teeth & seal lips around it or place mask over nose & mouth, then observe student during treatment				
When mist has stopped, tap side of cup, if no further mist, treatment complete				
Turn off machine & remove mouthpiece or mask				
Unplug machine, & take apart equipment				
Rinse out & dry nebulizer cup, put equipment away				
Places medication back in medication box & locks up medication appropriately				
Washes hands				
Documents on medication log sheet appropriately				
Calls student to office (if appropriate) in allotted time (30 minutes before or 30 minutes after)				

Employee Printed Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_

Employee School: \_\_\_\_\_

School Nurse Stamp/Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## ASTHMA RETURN DEMONSTRATION CHECKLIST

Explanation/Return Demonstration	Performs Independently clues	Performs with minimum verbal clues	Unable to perform
<b>Peak Flow Meter</b>			
Check's primary care provider Asthma authorization for completion (especially peak flow meter ranges/instructions and primary care providers signature)			
Washes hands & puts on gloves			
(*)Places pointer at base of number scale (0)			
(*) Have student hold meter, take a deep breath, place meter in mouth & close lips around mouth piece, blow out hard and fast			
Have student repeat step (*) two more times			
Record highest of three readings and follow primary care provides instructions based on reading (i.e. administer medication)			
Remove gloves and wash hands			
Calls student to office (as above (**))			

Employee Printed Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_

Employee School: \_\_\_\_\_ Date: \_\_\_\_\_

School Nurse Stamp/Signature: \_\_\_\_\_

## DIABETES BLOOD GLUCOSE TESTING RETURN DEMONSTRATION CHECKLIST

Explanation/Return Demonstration	Performs Independently clues	Performs with minimum verbal clues	Unable to perform
<b>General Diabetes Knowledge</b>			
Check's primary care provider Diabetes authorization for completion (especially primary care provider's signature)			
Verbalizes when glucose monitoring should be performed			
Verbalizes signs/symptoms of hypoglycemia & hyperglycemia			
<b>Verbalizes Universal Precautions</b>			
<b>Blood glucose testing</b>			
Gathers equipment (glucose testing meter, lancet device, strips, record sheet/book, gloves)			
Washes hands & puts on gloves			
Has student wash his/her own hands & dries them			
Inserts lancet into lancing device according to manufacturer's instruction, or observes student inserting lancet appropriately			
Inserts glucose strip into meter according to manufacturer's instructions, or observes student insert testing strip appropriately			
Warms fingers by rubbing, or have student warm fingers			
Puncture side of finger with lancing device, or observe student perform procedure appropriately			
Gently squeeze finger in downward motion to obtain an appropriate size drop of blood or observe student perform appropriately			
Place drop of blood on testing strip, or observe student perform step appropriately			
Apply band aid or have student hold pressure to puncture site briefly			
Verbalizes appropriate steps based on glucose testing results and primary care provider authorization (i.e. nothing needed, give glucose tablets, allow sugar-free drink & bathroom privileges)			
Removes test strip, turns off machine, disposes of lancet and strip appropriately			
Cleans test area			
Remove gloves & wash hands			
Document result on record sheet/book			

Employee Printed Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_

Employee School: \_\_\_\_\_ Date: \_\_\_\_\_

School Nurse Stamp/Signature: \_\_\_\_\_

## DIABETES URINE KETONE TESTING RETURN DEMONSTRATION CHECKLIST

Explanation/Return Demonstration	Performs Independently clues	Performs with minimum verbal clues	Unable to perform
<b>Urine Ketone Testing</b>			
Check's primary care provider Diabetes authorization for completion (especially primary care provider's signature)			
Verbalizes when ketone testing should be performed			
Verbalizes Universal Precautions			
Gathers equipment (ketone strips, cup for urine, timing device record sheet/book, gloves)			
Washes hands & puts on gloves			
Has student hold ketone strip in urine flow or student urinates in cup then dip ketone strip into urine			
Wait allotted time as directed on ketone test strip bottle			
Compare color of ketone test strip to chart on bottle			
Reads results & follows directions based on primary care provider's diabetes authorization			
Disposes of testing strip & urine appropriately			
Remove gloves & wash hands			
Documents results			

Employee Printed Name: \_\_\_\_\_

Employee Signature: \_\_\_\_\_

Employee School: \_\_\_\_\_ Date: \_\_\_\_\_

School Nurse Stamp/Signature: \_\_\_\_\_